

### **REMARKS/ARGUMENTS**

Reconsideration and allowance of the present application based on the following remarks are respectfully requested.

Claims 23-34 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Publication 2003/0153787 ("Carpenter") in view of U.S. Patent Publication 2003/0187103 ("Bloom"). Claims 35-41 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Carpenter in view of Bloom, in further view of U.S. Patent 6,780,910 ("Bouvy"). For at least the following reasons, the claims are believed to be patentable over the cited references.

Applicants submit that the Examiner has failed to present a *prima facie* case of obviousness, and therefore the pending claims are believed to be patentable over the cited art.

#### **No Motivation to Combine**

The present application is directed towards, *inter alia*, compounds that are effective emulsifiers for resins, such as unsaturated curable alkyd resins, to provide cured films having high hardness and good water resistance, while maintaining good gloss.

In contrast, while Bloom is directed towards *latex paint compositions* to provide dry paint films that are more durable and water resistant (see Bloom at Abstract), Carpenter is directed towards providing thickener compounds in *personal care products*, such as shampoos, particularly baby shampoos (see Carpenter at paragraph [0001]). Accordingly, Applicants submit that the Examiner has failed to provide the necessary motivation as to why one skilled in the art would look to the personal care product thickener compounds of Carpenter to develop a resin emulsifying compound, such as in the pending claims – much less that it would, or even could, achieve the benefits of using the same. Similarly, the Examiner has failed to provide any rational basis for establishing why one skilled in the art would expect that a personal care product thickener compound, such as those discussed in Carpenter, could be successfully transformed into an effective resin emulsifier (*i.e.*, by modification with Bloom's latex paint composition in the manner asserted by the Examiner in the present Final Official Action).

Accordingly, given the above differences in scope of the cited art, Applicants submit that the Examiner has failed to provide the necessary motivation to combine Carpenter with Bloom to establish a *prima facie* case of obviousness rejection against the pending claims.

No Teaching of "On Average at Least 1.2"

Even assuming arguendo that one were to combine Carpenter and Bloom, Applicants submit that neither reference teaches or suggests compounds having *on average at least 1.2 groups/molecule* that are or comprise a hydrocarbyl group *comprising at least two ethylenic double bonds*.

The Examiner acknowledges on page 4 of the present Final Official Action, that Carpenter does not teach a hydrocarbyl group *comprising at least two* ethylenic double bonds. Accordingly, to cure this deficiency, the Examiner must rely on the "polyunsaturated fatty acid or derivative thereof" term in Bloom.

However, Bloom's term "polyunsaturated fatty acid or derivative thereof" is used in the context of a polyunsaturated fatty acid mono-ester of glycols (see Bloom at paragraph [0067]). Accordingly, Bloom does not provide – much less suggest – compounds comprising *more than one* doubly unsaturated acyl residue, as Bloom is directed to mono-esters. Therefore, Bloom also fails to teach or suggest compounds having *on average at least 1.2 groups/molecule* that are or comprise a hydrocarbyl group *comprising at least two ethylenic double bonds*.

"Molar Ratios" Fails to Cure Deficiencies

To cure the above failings of both Carpenter and Bloom, the Examiner then asserts that Carpenter's mere mentioning that a fatty acid may be optionally included into the thickener - "in molar ratios corresponding to the number of ASA and optional fatty acid residues desired in the product" – is somehow an obvious suggestion of the claimed compounds (see present Final Official Action at page 8).

Specifically, the Examiner asserts that "in molar ratios" suggests that Carpenter's alkenyl succinic acid groups may be exchanged with Bloom's polyunsaturated fatty acid groups to such an extent as to provide a compound having *on average at least 1.2 groups/molecule* that are or comprise a hydrocarbyl

group *comprising at least two ethylenic double bonds*. The Examiner further assumes – but also fails to establish – that the term “desired in the product” has a meaning outside the context of thickeners used in personal care products. However, Applicants submit that above assertions of the Examiner are the result of an impermissible hindsight reconstruction requiring a change in the “principle of operation”<sup>1</sup> of Carpenter.

Carpenter teaches a thickener compound upon the basic principle that it requires two or more (especially three or more) succinic ester groups – either an alkyl succinic acid group or an alkenyl succinic acid group [each comprising only a single double bond] to provide very useful thickening properties. By exchanging Carpenter’s succinic acid ester groups to the extent asserted by the Examiner would be *redefining* a required element of Carpenter. Namely, the Examiner’s assertion removes or minimizes the essential thickening-feature of having two or more esters of alkenyl succinic acid groups and replaces them with Bloom’s polyunsaturated fatty acid mono-ester groups that do NOT comprise a succinic acid group (*i.e.*, does not have the essential element of Carpenter’s thickener) to build a *prima facie* case of obviousness. Thus, as the change in the principle of operation results in an unpredictable combination with no reasonable expectation of success, the asserted combination fails to present a *prima facie* case of obviousness.

In the alternative, the Examiner’s assertion of replacing Carpenter’s optional saturated fatty acid groups or mono-unsaturated fatty acid groups with Bloom’s polyunsaturated fatty acid mono-ester groups – also fails to provide any guarantee of success that such a change to a personal care product thickener would develop an effective emulsifier for resins. Specifically, while Carpenter discussed that the thickener compounds may optionally include an ester of a fatty acid, there is nothing in Carpenter to teach or suggest that this ester comprise *more* than one ethylenic double bonds, such as at least two ethylenic double bonds. The fact that the fatty acids mentioned in Carpenter only comprise saturated fatty acids and a *mono*-unsaturated fatty acid, may equally suggest a possible teaching away of fatty acids

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<sup>1</sup> VI. THE PROPOSED MODIFICATION CANNOT CHANGE THE PRINCIPLE OF OPERATION OF A REFERENCE. If the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 USPQ 349 (CCPA 1959) [See MPEP 2143.01(V)]

having more than one degree of unsaturation. Moreover, Carpenter also does not teach or suggest that the inclusion of an optional fatty acid will provide any other properties outside the contemplated scope of thickening in personal care products.

And finally, the Examiner asserts that “[i]t is *prima facie* obvious to combine individually old ingredients for their known additive function” (see present Final Official Action at page 8). Just as the Examiner failed to establish the necessary motivation to combine Carpenter with Bloom, similarly, the Examiner also fails to explain how – much less why – it is *prima facie* obvious to combine: (i) the *thickening function* of a personal care product thickener (an alleged first “old known additive function”) with (ii) a latex paint composition having *durable and water resistant producing functions* (an alleged second “old known additive function”) for dry paint films, to provide (iii) an effective emulsifier compound for resins that can provide cured films having *high hardness and good water resistance, while maintaining good gloss functions*.

Therefore, in view of the above, Applicants submit the asserted rejections are nothing more than the result of an impermissible hindsight reconstruction via the guidance of the pending claims. Accordingly, as the Examiner has failed to present a *prima facie* case of obviousness, Applicants submit that the pending claims are patentable over the cited art.

#### Unexpected Results

Even if one were to further assume *arguendo* that one were to combine Carpenter and Bloom, ignoring both the absence of a motivation to combine and the required change in principle of operation of Carpenter, Applicants submit that the pending claims are patentable over the cited art in view of the unexpected results achieved. Specifically, as illustrated in the Table below, the films produced from the emulsions of the claimed emulsifier compounds (“Inventive Examples”) achieved unexpected film hardness results as compared to the “Comparative Example” emulsions, different only in the identity of the emulsifier, while maintaining good gloss:

**Table**

	Comparative Example	Inventive Example
After 4 days drying	975 g	<b>1225 g</b>
After 7 days drying	1100 g	<b>1300 g</b>
After 14 days drying	1200 g	<b>1350 g</b>
After 28 days drying	1275 g	<b>1450 g</b>
Gloss value	62%	<b>60%</b>

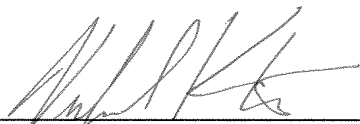
In view of the above, and as Bouvy fails to cure the above-noted deficiencies of either Carpenter or Bloom, alone or in combination, Applicants submit that the pending claims are patentable over the cited references.

Therefore, all objections and rejections having been addressed, it is respectfully submitted that the present application is in a condition for allowance and a Notice to that effect is earnestly solicited.

Should any issues remain unresolved, the Examiner is encouraged to contact the undersigned attorney for Applicants at the telephone number indicated below in order to expeditiously resolve any remaining issues.

Respectfully submitted,

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